FIGURE 7.19 Avoid Buying When the Slow Line Has Been Extended Upward and Has Now Turned Down

often highlights a structural tension in the market where the short-term momentum, as measured by the fast line, is in conflict with the longer-term momentum measured by the slow line. Figure 7.20 shows the results of combining the fast line hook entry with this condition on a daily chart of Lean Hog futures. This is not intended to be a complete mechanical trading system, though a system could be built on this concept. Also consider, in Figure 7.20, the fast line hook entries (not marked) that were skipped. At the very least, the MACD provides some powerful clues about market structure, momentum, and price action.

MULTIPLE TIME FRAME ANALYSIS

Multiple time frame analysis provides another layer of depth and richness to market analysis. It can place patterns in one time frame in the context of other time frames to better identify those spots where the patterns are more likely to have arisen due to an actual imbalance in the market rather than as a result of random chance. Many traders

FIGURE 7.20 Fast Line Hook Entries Qualified with Fast/Slow Line Spread

assume that higher time frames are more significant; for instance, that patterns on the weekly chart are more important than patterns on 5-minute charts. This is not exactly true—structures on different time frames can take control at any time, and one of the major tasks of analysis is to identify what time frame and what structure are the dominant factors in a particular market at any point in time.

There are spots where price action may be completely dictated by what happens on a very short time frame, for instance, 1- or 3-minute charts, and other times when the most important factor might be a level that is visible on weekly or monthly charts. We can usually identify a dominant structure or set of structures on one time frame, and can often watch as control is essentially passed from one time frame to another. For instance, perhaps a resistance level is tested multiple times on the 1-minute chart, and then is broken cleanly with a clear consolidation just below the level. At this moment, the 1-minute chart would be in control, but perhaps this breakout happened at the turn of a pullback on the 5-minute chart. We could then say that the pullback on the 5-minute chart and the subsequent trend leg have taken control as the 5-minute chart becomes the dominant time frame. Perhaps the market eventually runs into a new resistance area on the 30-minute chart, at which point we could identify that as the dominant technical

structure. This discussion could apply without any loss of generality to daily/weekly/monthly or to any other set of time frames, but the most important point is to avoid that naive assumption that higher time frames are always more important. Work instead to identify the dominant technical structures and to understand what time frame has control.

There are two broad areas to this study: the impact of lower time frames on higher time frames and the power of higher time frame structures to shape price action and market structure on lower time frames. In practical terms, higher time frame considerations can add confidence to trades, filter other trades entirely, or help to set targets for trades. Lower time frames can help to add precise entry points for bigger, higher time frame patterns, and lower time frame price action can suggest whether support and resistance are more likely to hold or to break on higher time frames. This is an oversimplification, but these factors are the core understanding of how most traders use multiple time frame analysis.

This is a difficult subject to teach because traders often attempt to move to multiple time frames before they understand the structures and implications of a single time frame. There is some justification for this attempt—patterns become much more powerful when seen in the context of multiple time frames, and a few simple tools can greatly increase the probability of winning trades. However, it is impossible to develop the intuition and skills needed to comprehend multiple time frames unless you can proficiently read the chart of a single time frame. It is important to fully understand the individual building blocks before trying to create elaborate structures.

The situation is complicated further because much of the written material on this subject lacks clarity. The trend seems to be either toward indicator-based oversimplification (e.g., look for long trades while an indicator applied to a higher time frame shows that the higher time frame is in an uptrend) or toward obfuscation and confusion. Neither is good. Multiple time frame trading cannot easily be reduced to a simple rule set, but there are some commonalities and structures that occur over and over again. This section examines a few recurrent patterns and concepts, and lays a foundation for further exploration.

Lower Time Frame Structures within Higher Time Frame Context

Earlier in this book, I outlined a useful, but rigid, three-time-frame structure in which the trading time frame was supported by both lower and higher time frames. "Lower time frame" always refers to the time frame below the one being traded, and "higher time frame" always refers to the time frame above the one being traded, with each time frame usually related to its neighbor by a factor between 3 and 5. For now, let's leave that structure behind for a minute and simply consider two time frames, a higher and a lower, in relation to each other, without designating one specific trading time frame.

To understand higher time frame influences on lower time frames, first consider what price patterns create the highest-probability trades on a single time frame. There could be

some debate, but good places to start would be mean reversion in overextended markets, especially following climax moves; the interface between pullbacks and new trend legs, or the point where new with-trend momentum emerges out of a pullback; higher time frame drives to clear target areas; and failure tests at the extremes of a range, ideally with signs of accumulation or distribution. In the presence of one of these formations on the higher time frame, lower time frame price action and market structure will be molded as prices inexorably move toward a resolution of the higher time frame pattern. A few examples will help to clarify these vital concepts.

Higher Time Frame Mean Reversion One of the main problems in technical analysis is distinguishing exhaustion from strength. Exhaustion is indicative of overextended moves that will soon reverse; real strength (or weakness) occurs with moves that should have continuation in the same direction. If it were always possible to tell one from the other, we would always know whether to fade moves or to enter pullbacks for continuation, but, of course, it is not possible to make these distinctions every time. Though there are characteristics associated with each, there are also many similarities and even our best tools work within the laws of probability. There is no certainty in trading; the best we can hope for is to find something that will give a slight, reliable bias or tilt. Some type of well-calibrated band or channel—for instance, the Keltner channels I use and discuss in this work—can provide a good visual and quantitative reference for overextension. On a single time frame, you would not want to make a standard practice of buying strength above the upper band or shorting weakness below the lower band.

Figure 7.21 shows a pullback on daily Wheat futures that might have been buyable, taken out of context: the market consolidated after a strong upthrust, put in a series of smaller-range bars, and eventually showed a return of upside momentum at the spot marked on the chart. However, the weekly chart shows a long tail and a clear exhaustion above the channel, greatly reducing the attractiveness of the potential long entry on the daily chart. Many traders think that a good analytical system will get them into more winning trades, but equally valuable is a system that will reduce the number of losing trades. Being aware of higher time frame overextension and potential exhaustion is one tool that can help traders avoid trades that immediately fail and collapse under the force of higher time frame mean reversion. (Note that in all of these charts the left pane expands on the highlighted section of the right pane. The lower time frame is in the left pane, the higher time frame in the right.)

Figure 7.22 shows another example, this time in the broad U.S. equities market. At the end of the daily chart, an aggressive trader could have justified taking a shot at a short. True, this was not the best possible trade setup, but the market had just completed a sloppy complex pullback after making new lows, and had been locked in a strong downtrend for many quarters. However, the weekly chart again puts this trade in context. After three pushes down, the last of which was on a glaring momentum divergence (i.e., price made a new low and the MACD fast line was unable to do so), it would have been unrealistic to expect a clean short. There are two valuable lessons here: First, the weekly chart does not clearly support a long trade, but it did offer enough upside

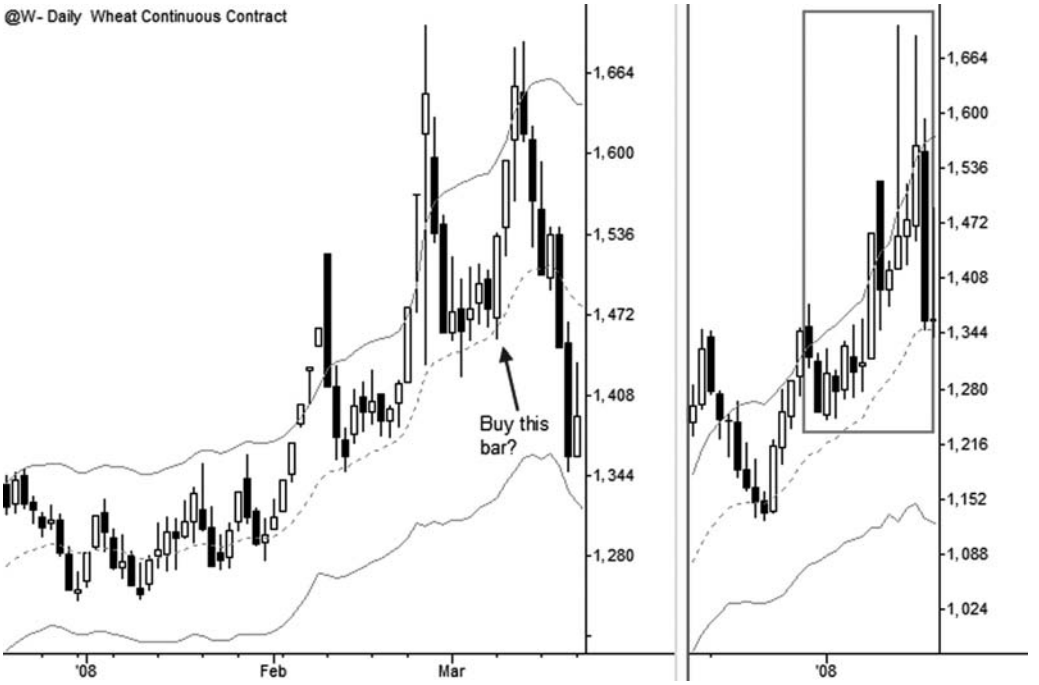

FIGURE 7.21 Exhaustion on the Weekly Chart Suggests Passing on This Buy Signal

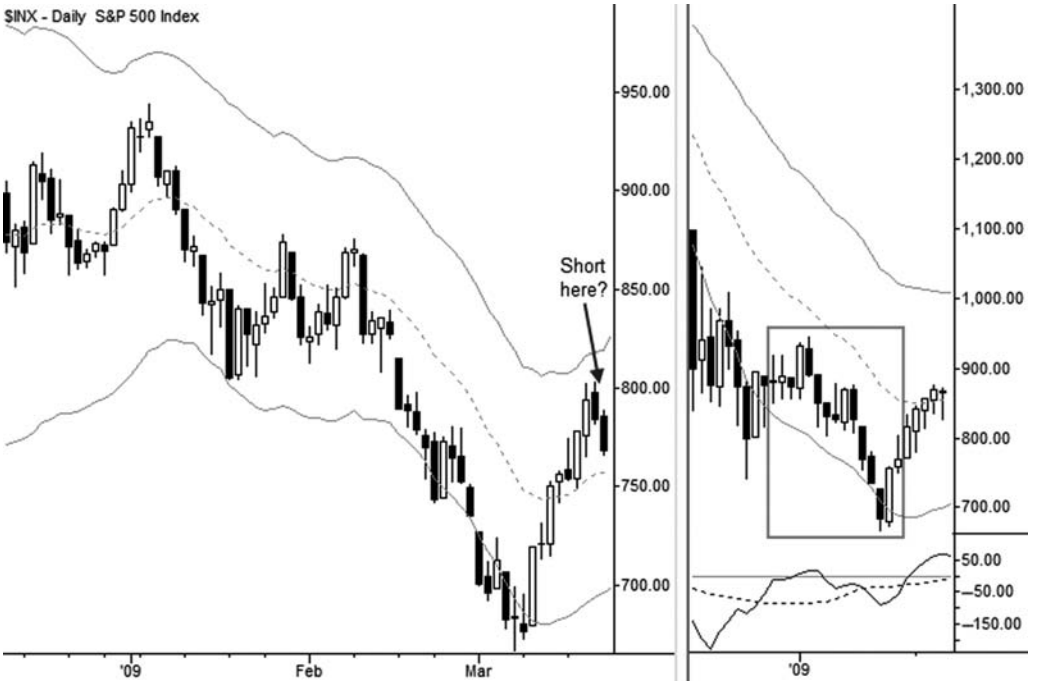

FIGURE 7.22 Several Factors on the Weekly Chart Contradict a Potential Short on the Daily

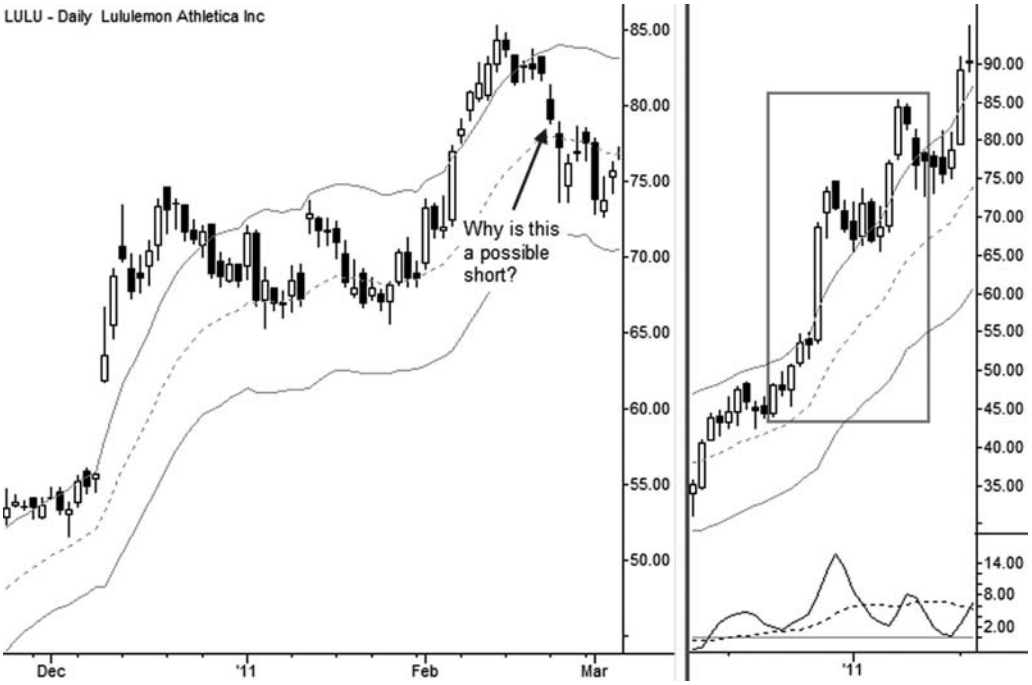

FIGURE 7.23 Why Short *under* a Bull Flag on the Daily Chart?

evidence to negate a potential short setup on the lower time frame. In this case, a set of conditions that might not have fully supported a long entry were enough to justify not taking a potential short setup. Second, most of the trades that are contradicted by higher time frames are also not excellent setups on one time frame. To some extent, focusing on the geometry of a single time frame will also wrap in some of the multiple time frame factors, though there is still valuable information to be gleaned from analysis of neighboring time frames.

Higher time frame considerations are not limited to providing filters to skip trades; sometimes they also can be motivation enough to justify trade entries. Figure 7.23 shows LULU, a market-leading stock in February 2011, extended above the upper band on the weekly chart, again with momentum divergence on the MACD. The tight consolidation on the daily chart might potentially be a place for aggressive longs to consider adding to positions or entering new positions. Looking only at the daily chart, we would *never* consider shorting under such a consolidation, because a high and tight flag is usually indicative of real conviction from buyers; furthermore, shorting an extremely strong market leader in any context is usually a recipe for pain. It is far better to spend your time and mental energy figuring out how to buy those market leaders and how to short laggards, in most cases. However, in this case, the weekly chart provided another layer of information, and the clear overextension made it possible to justify a quick short under the little range on the daily chart. There is also another lesson here: after a longer

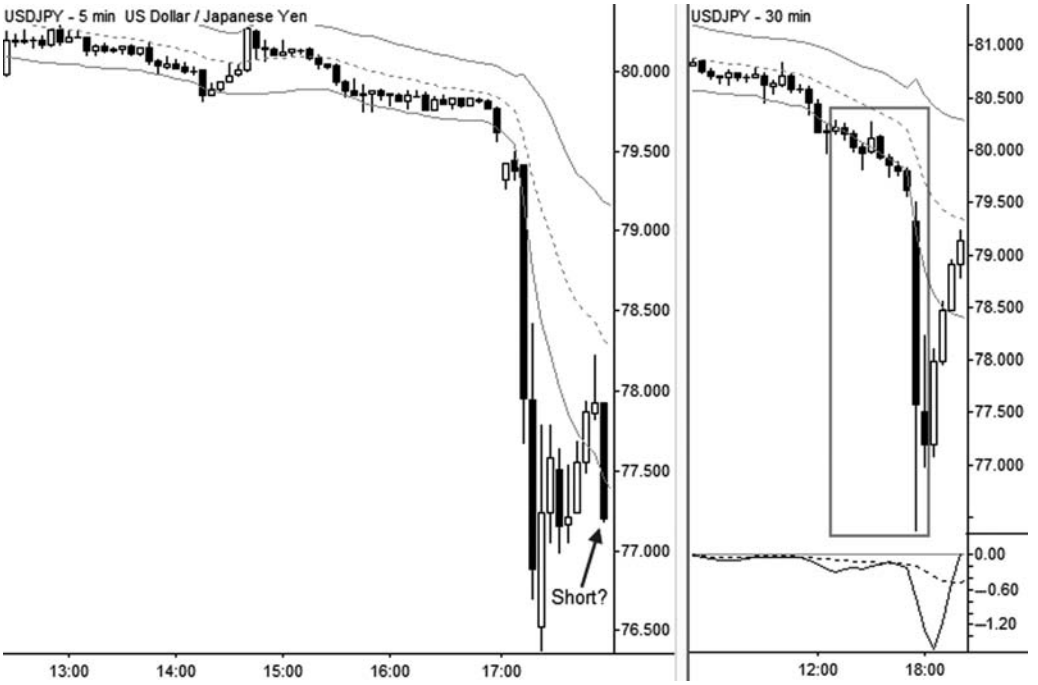

FIGURE 7.24 The Higher Time Frame Suggests That the Lower Time Frame Short Will Be Difficult

pullback, this stock spent some time consolidating and eventually headed much higher. Swing traders cannot be greedy. Your job is to take what opportunity the market offers and to be quick to realize when the trade is over.

These examples have focused on longer time frames, but the same principles apply to much shorter time frames as well. Figure 7.24 shows 5- and 30-minute charts of the USDJPY in the early evening (New York time) on March 16, 2011. The 5-minute chart shows a structure that could potentially be shortable for at least a retest of recent lows, though the presence of a selling climax, indicated by the overextension past the lower band, should give shorts pause for concern. In this case, the 30-minute chart provides context that is not as clearly visible on the 5-minute chart. The market is drastically overextended beyond the lower band on the higher time frame; this usually happens in response to a significant exogenous shock—in this case the aftermath of the 2011 Tōhoku earthquake in Japan.

In a situation like this, you may still choose to take the short trade, but you have to realize that the character of the trade, especially if you are wrong, will be different. There is a much higher probability of a dramatic failure and reversal when the market is overextended on the higher time frame, so a trade taken under these conditions has a completely different risk profile. Skip the trade altogether, take it and manage the risk with a tighter stop, or choose to get out at the first sign you might be wrong—these are all acceptable alternatives. What is *not* acceptable is ignoring the clear message of the

higher time frame extension and taking an unnecessary large loss as you continue to short into the mean-reverting higher time frame.

Higher Time Frame Pullbacks To understand the effects of higher time frame pullbacks on the trading time frame, first review some of the characteristics that define high-probability pullbacks on a single time frame:

- Presence of a good impulse setting up further continuation.
- Market is not overextended.
- Market is not on the third (or later) trend leg.
- Absence of momentum divergence.
- Absence of buying or selling climax.
- Pullbacks show generally lower activity and volume than the trend legs.

These conditions and patterns, when they appear on the higher time frame, can provide motivation for and add confidence to trades on lower time frames.

Figure 7.25 shows a pattern on the daily chart of Crude Oil futures that might not be compelling by itself. It is obviously some form of a pullback, but the move up off the lows was maybe a little too far too fast to justify shorting; it could also be read as a potential setup for a long Anti trade, but it is not an example of the best possible trade

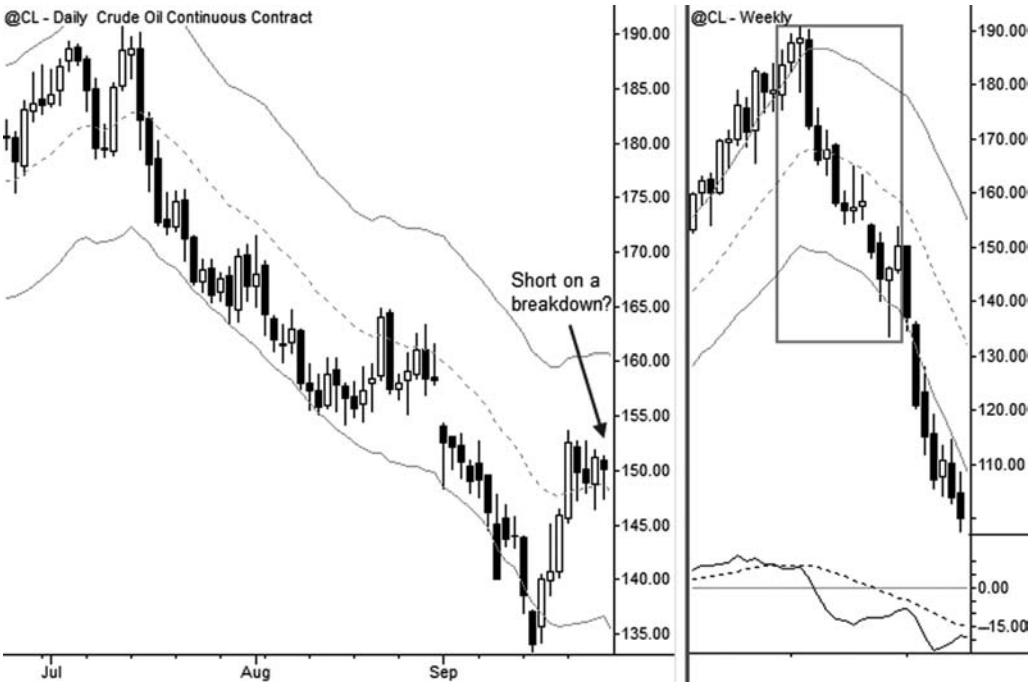

FIGURE 7.25 A Mediocre Pullback on the Daily Chart Is an Excellent Pullback on the Weekly Chart

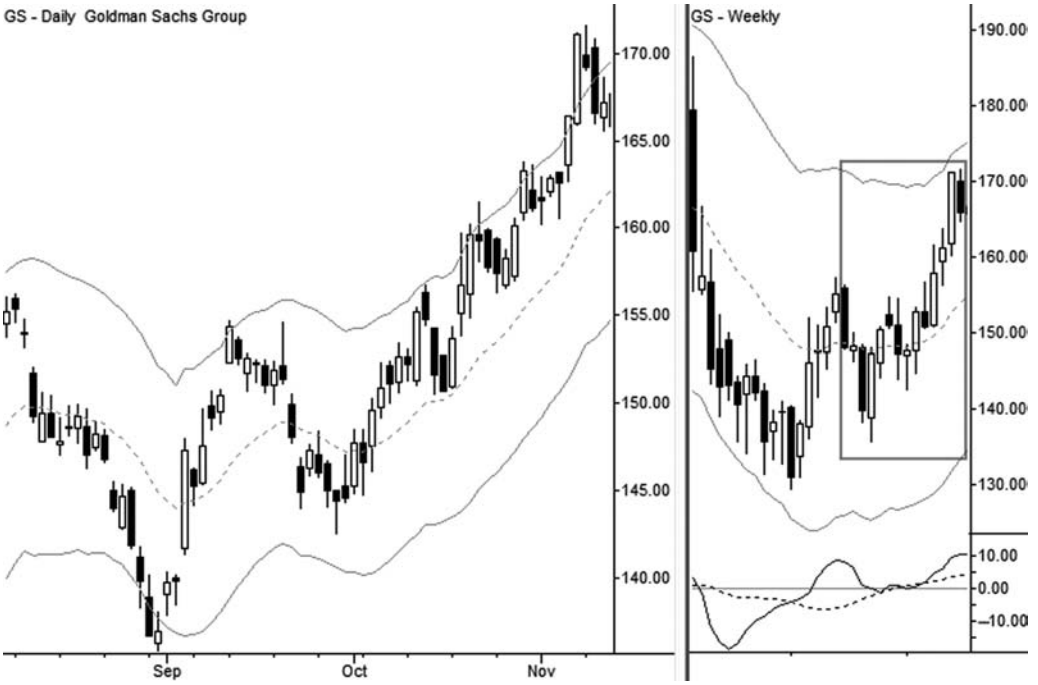

FIGURE 7.26 The Weekly Anti Provides Bullish Context to the Daily Chart

on this time frame. However, the weekly chart shows a clean bounce, which was the first reaction after the collapse from the overextended highs *and* the first pullback after a strong impulse move pushed prices below the lower channel. The weekly pattern added confidence to the daily consolidation, and justified a short attempt on a breakdown out of this pattern.

Figure 7.26 shows another example on weekly and daily charts of Goldman Sachs from October 2010. The pattern on the daily chart was anything but convincing: many large gaps and sudden reversals. Though the market was in an uptrend from the September lows, it might have been difficult to see this at the time. However, the weekly chart shows a pattern that we know well: several marginal new lows on slackening momentum followed by a sharp reversal off those lows. The upward reversal (not visible on the daily chart) made new momentum highs on the weekly chart and set up an Anti trade. This weekly chart pattern put a clearly bullish context on an otherwise difficult daily chart, and traders would have been justified aggressively pursuing long setups on the daily chart. In this case, there were many small bullish setups on this time frame: failure tests of support, breakouts of small daily flags, and, finally, an overextended climax just beyond the weekly measured move objective for the weekly Anti. At this point, realizing that the weekly chart had basically fulfilled its expectations for a measured move would have removed much of the bullish context from the daily patterns, justifying a reduction of risk or perhaps a complete exit from the trade.

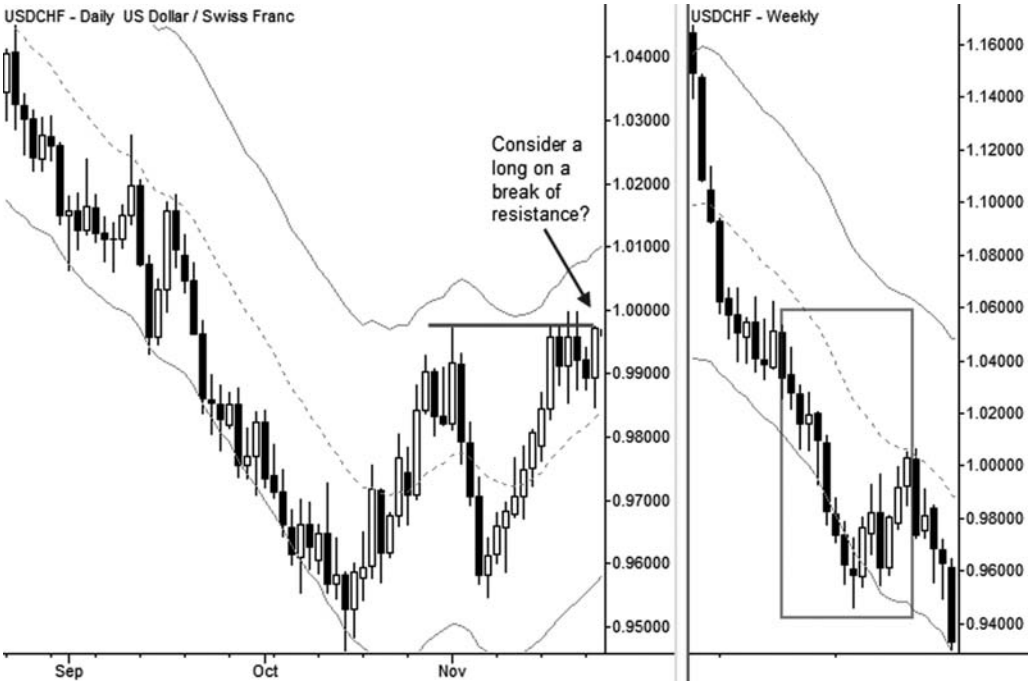

FIGURE 7.27 The Potential Breakout on the Daily Is Contradicted by the Weekly Complex Consolidation (Bear Flag)

Higher time frame pullbacks can also be a filter to skip trades that set up against those pullbacks. Figure 7.27 is an important example that shows what might have been seen as a good setup for a breakout on the daily chart: the consolidation up against resistance normally suggests the possibility of a strong break above that level, and is the opposite of the price rejection that normally accompanies a level holding. However, the weekly chart provided context, showing that the breakout was actually coming near the top of what was more likely to be bearish complex consolidation on the weekly chart. In this case, the higher time frame provides a bearish bias, which clearly contradicts the smaller pattern on the daily chart. The consolidation on the weekly could certainly fail, and it would do so through the success of the bullish breakout on the daily, but the probabilities favor downside continuation. There are a number of things you can do with this information, ranging from skipping the trade on the daily to taking it on smaller risk (which is not usually a good idea), or perhaps even watching for a breakout failure and entering a short trade on the daily. This last possibility combines a small pattern on one time frame with a bigger-picture bias from a higher time frame, which is an excellent use of multiple time frame information. At the very least, beware of patterns on one time frame that are clearly contradicted by strong patterns on higher time frames, especially when the patterns occur at potential inflection points.

Higher Time Frame Drives to Targets In general, markets tend toward efficiency, and random walk prevails most of the time; when markets are more predictable, it is usually in short spurts of activity, which can sometimes be identified through specific patterns in prices. One common area of a more predictable spurt occurs when a pattern has broken into a move to a target—for instance, on the drive out of a consolidation pattern or following a strong break of support or resistance. These situations are not that common, but recognizing that a scenario like this is in play can lend support to otherwise uninteresting lower time frame patterns. Consider Figure 7.28, which shows several small consolidations on the daily chart of Finisar Corporation (NASDAQ: FNSR). These are perfectly acceptable consolidations (the first is an Anti, and the second is a simple bear flag), but the weekly chart provided strong tailwinds for these patterns and made them much more attractive than they might have been on their own.

Another possible use of this concept is to monitor evolving price action on *lower* time frames while a trade is underway on the trading time frame. If consolidation patterns resolve in the intended direction of the trade, all is well. If the trade should fail, it will usually do so through a failure of one of these lower time frame patterns. Being able to read evolving price action and market structure on the lower time frame can often provide excellent exits from trades, but it is necessary to balance this new layer of information against the possibility of being overly reactive to insignificant noise.

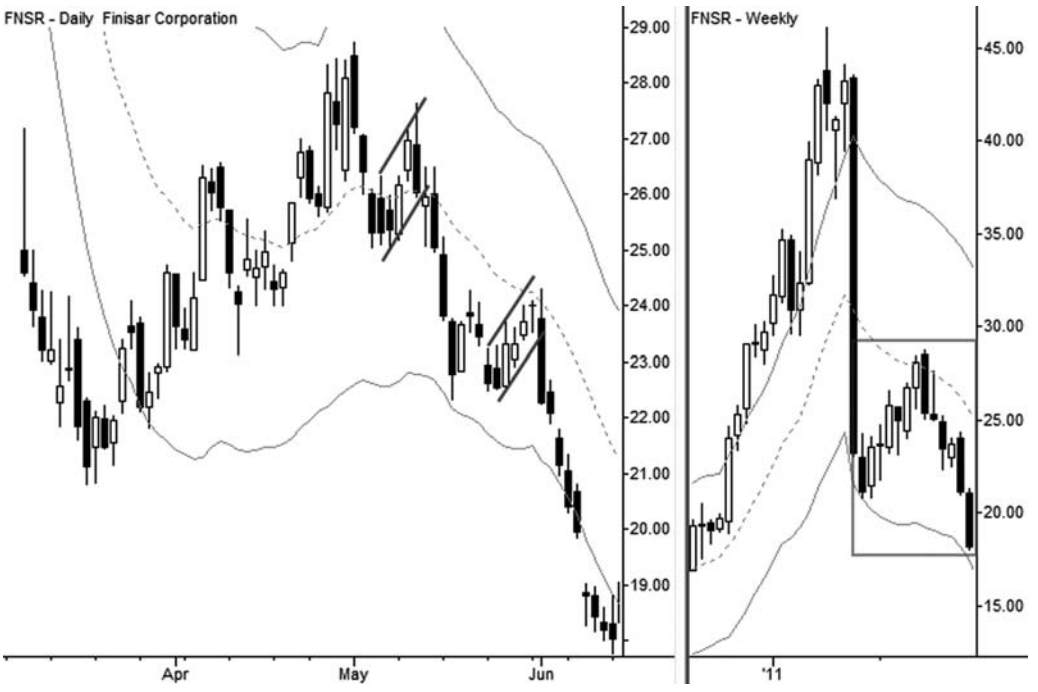

FIGURE 7.28 The Weekly Flag Adds Power to Small Consolidations on the Daily Chart

Higher Time Frame Failure Tests Most traders who have studied multiple time frame interactions are comfortable with the idea that a market can be uptrending on one time frame, ranging on another, and downtrending on yet another, but there is another important consideration that few traders understand: the strongest trends often emerge in higher time frame consolidation areas. We know that price tends to respect support and resistance levels in trading ranges, oscillating back and forth between those levels. These levels are often rough and poorly delineated, and price action within the range tends to be more random and subject to sudden, large shocks. The irony is that what appear to be large shocks on one time frame are often strong, tradable trends on the lower time frame. Since one of the cleanest trades in a range is the test beyond the confines of the range that immediately reverses, as in the classic Wyckoff spring or upthrust, we can trade reactions off those higher time frame ranges with some degree of confidence.

Figure 7.29 shows a continuous chart of Gold futures. After an extended uptrend, this market ran into resistance, made multiple marginal highs, and eventually rolled over into a trading range at the beginning of 2011. The sell-off found support at a previous swing low (visible on the weekly chart in the right pane), and the subsequent move off that low was a strong uptrend on the daily chart. In this case, resistance eventually failed and the market continued much higher, but this is not the point. The point is that the daily chart showed a clean, strong uptrend off the support level defined by the weekly

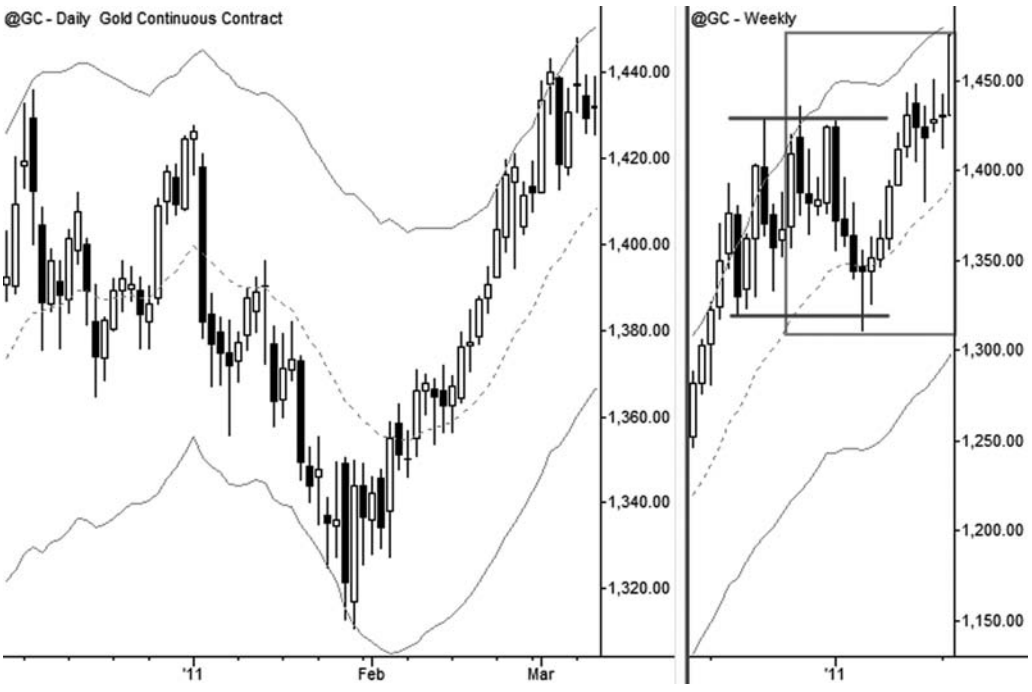

FIGURE 7.29 A Clean Daily Uptrend While the Weekly Chart Is in a Trading Range

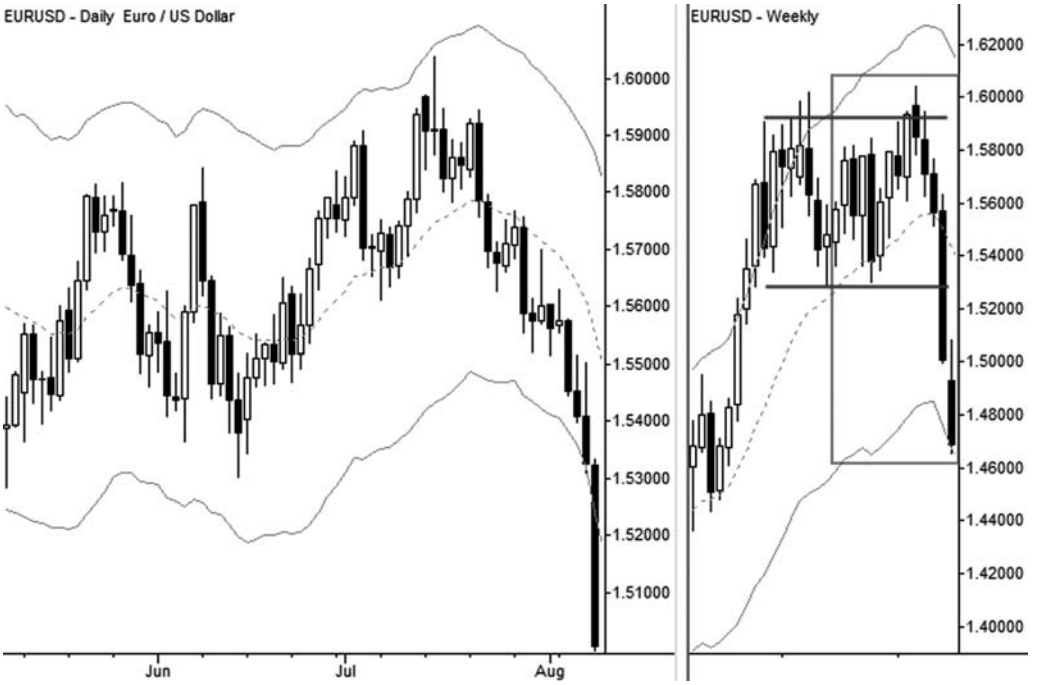

FIGURE 7.30 Another Example of a Lower Time Frame Trend While the Higher Time Frame Is in a Trading Range

trading range. Even if you are a trader who avoids markets in trading ranges, be aware that there may be opportunities in those markets on other time frames.

For another example of this concept, look at the EURUSD, pictured in Figure 7.30. The weekly chart was clearly in a trading range, while the daily chart shows a strong downtrend off the test of resistance in July. Some of the best and cleanest trends come within higher time frame consolidation areas. This is an important and often misunderstood element of price action that will repay careful study.

Timing Entries from Lower Time Frames

Remember the general three-time-frame structure: there is the time frame actually being traded (the trading time frame), and a higher and a lower time frame relative to that trading time frame. This is a somewhat arbitrary structure, but it is important for traders to define their intentions and the relevant time frames clearly. It is difficult to isolate cross-time-frame influences because, in reality, these flow both ways. The higher time frame (relative to the trading time frame) usually can suggest which trades are more likely to reach their targets and which are more likely to fail; the bigger-picture context provided by the higher time frame can be a valuable layer of information. In contrast, lower time frames are usually used in two ways: to time precise entries into trading time

frame patterns or to monitor price action and conviction that may not be visible on higher time frame charts.

Timing Entries from the Lower Time Frame There have been hints of using the lower time frame to find exact entry points in the previous section. For instance, an alert trader could have used the tests of support and resistance on the higher time frames in Figures 7.29 and 7.30 to enter at the beginning of strong trends on the lower time frame. This is a general plan for a powerful way to use the lower time frame as a timing tool into higher time frame patterns: at important structural points such as tests of support/resistance or previous pivots on the higher time frame. Think of it like this: If you stand on a chair and step off, you will very predictably fall a short distance and hit the floor—no big deal. All other things being equal, this is what breakouts on any time frame are like; an equilibrium level is disturbed and a predictable move of moderate size usually results. However, now repeat the experiment of jumping off a chair, but this time position the chair at the edge of a cliff. The step off the chair is still one small step, but now the result is out of all proportion to what you would have expected from that simple step. This is what happens when the moderate and predictable momentum from a lower time frame break feeds into a structure that is already at the tipping point on a higher time frame. These have already been formalized in some of the trade entries in Chapter 7, but this is a rewarding area of study for discretionary traders.

Reading Price Action on Lower Time Frames Another way to use the lower time frame is to add depth and richness to market structure on the trading time frame. Traders who are watching order flow and monitoring markets closely during the trading session usually develop an intuitive sense for price action in those markets. However, there is a practical limit to how many markets can be followed this way, and some traders will be unable to devote full attention to price action while markets are open. A very skilled intraday trader might be able to track two dozen markets reasonably closely, but most traders, especially developing traders, will find it difficult to monitor more than half a dozen at a time. In addition, many traders prefer to trade higher time frames, and they make an effort to not focus on the short-term fluctuations in the markets they trade.

For traders in these situations, a careful analysis of lower time frame market structure can inform their understanding of price structures on the trading and higher time frames. For instance, if the trading time frame is trending, how is the lower time frame moving? Are there clear consolidations and good breaks that are indicative of a healthy trend? Are there potential overextensions and exhaustions on the lower time frame, or signs that momentum is starting to fail on that time frame? If the higher time frame is engaging important resistance, what is happening on the lower time frame? Is there evidence of price rejection, or are there consolidations near the higher time frame resistance that could presage a break of that level? This is definitely a blend of art and science, but these are key considerations for traders who do not monitor every tick of every market they follow—in other words, nearly everyone.

Summary of Multiple Time Frame Analysis

We have just scratched the surface here; to make best use of these concepts they must be internalized, which takes repeated exposure, deep thought, and dedicated study. However, we have covered most of the important core concepts, and, taken individually, they are not complex:

- There are not always meaningful multiple time frame considerations. The best examples are obvious and clear. Do not get too creative; if you have to work hard to see them, they probably are not there.
- When a higher time frame is trending, patterns that work *with* that trend direction on lower time frames will be reinforced. Win rates will be higher, and moves will be sharper and cleaner.
- When a higher time frame is trending, patterns that run *contra* to that trend on lower time frames will tend to abort. Though there can be impressive countertrend runs on lower time frames, these have limited expectations and they tend to resolve into with-trend patterns in the higher time frame. Trends that are countertrend to higher time frame trends tend to end at ideal entry points for with-trend entries in the higher time frame trend.
- When the higher time frame is ranging, expect sharp trends on lower time frames. Some of the best trends actually occur in the context of higher time frame consolidation.
- Breakouts that might be insignificant by themselves can be reinforced if they occur at critical tipping points in higher time frame structures. When this happens, we can time entries into the higher time frame trades with precision from lower time frames.
- Ranges on lower time frames are often continuation patterns on higher time frames. This can provide a bias for a directional breakout of these ranges.
- The character of price action on lower time frames often provides insight into the relative buying and selling pressure behind the market's movements. There is usually more noise on lower time frames, so be aware of this complicating factor.

Armed with these ideas and the examples in this chapter, start to examine markets and trade setups with these ideas in mind. These multiple time frame considerations can add confidence to some of your best trades and may give you justification to cut some losing trades more quickly.

Relative Strength

Relative strength is another way to understand the action and the convictions of market participants in related markets. In general, the idea is not complex: things go up in price because demand has, at least temporarily, overtaken supply—these movements are driven by strong buying pressure. It takes a lot of money to make a significant move in a major market, so when we see relative outperformance in an asset or assets, we can

usually assume that informed traders are driving the move. It is the same idea that drives all technical analysis: significant buying and selling must leave patterns in prices. These patterns can be complex and they are obscured by background noise more often than not, but if we can learn to read them we can understand what the large players in the market are doing and how they are positioning for the future. If we are monitoring a group of related markets, we will usually see that a few of them are stronger than the rest, and one or two often emerge as the clear leaders. Conversely, it is usually possible to identify a handful of laggards who tend to move behind the group. Much of the literature on relative strength comes from the context of equity traders who have a strong long bias (many of whom do not short stocks at all) and are attempting to identify market-leading stocks, but the concept is equally valid to the downside. In bear markets, it is possible to identify relative strength leaders to the downside and laggards that resist the sell-offs. Do not be confused by the terminology—relative strength leaders lead the trend, whether that trend is up or down.

A rule of thumb is that, if you are trading relative strength ideas, you want to be long the strongest markets in an uptrend, and you want to be short the weakest in a downtrend. Be careful, because to many traders, the opposite play might seem to be attractive. They will focus on buying the weaker markets in uptrends, with the justification that they are cheap and that they have a lot of room to make up. This is human nature, but, unfortunately, it is usually exactly the wrong play. It is difficult, and somewhat counterintuitive, to be buying things that are already marked up more than average (this is the definition of a market leader), but resist the temptation to go bargain hunting in the relative strength space. It is far better to be in the markets that have the best institutional reinforcement and support, or, on the downside, to be short the markets the institutions are dumping.

If you choose to develop a systematic trading plan based on relative strength, you will also need to consider the impact of mean reversion. Consistently buying the strongest markets will often have you buying overextended markets that are poised for at least a temporary reversal. Depending on how you rebalance your portfolio and actually execute, you could potentially then rotate into the new leaders after booking losses on the first set, and repeat this process as long as capital allows. Systematic approaches to relative strength are possible, but these issues have to be addressed in development and through proper backtests. There is also a lesson here for discretionary traders: though you may want to focus much of your attention on relative strength leaders, blindly buying them is probably not a path to success.

There are many ways to track relative strength. The simplest is probably to simply take a number of markets and rank them by percent change from a fixed point in time, but there are a few potential issues with this simple measure. Most importantly, this measure is anchored to two specific points in time, and is blind to anything that happens in between. One market could appreciate 10 percent in a series of steady gains, while another could have extremely volatile swings and just happen to end the evaluation period also up 10 percent. Both markets will register the same relative strength readings, but they may have dramatically different trading characteristics. In a purely quantitative ranking this may not be an issue, but it must be considered before trades are actually made.

Choosing an arbitrary look-back window is not always a good choice, since the rate of change (ROC) calculation is also sensitive to what happens at the initial point. To standardize, it is possible to anchor the calculations to a fixed point in time, and to calculate changes for a wide range of related markets from those points. Significant swing highs and lows are ideal anchor points for this calculation. For instance, if tracking individual stocks, they can all anchor their ROC calculations to a significant and visible pivot on the weekly chart of a broad index. When the market structure of that index evolves, usually no more than once every other month, the ROC calculations can be updated to refer to the new pivot point. The same thing can be done with grain markets, currencies, or world equities, though the reference indexes are not always as clear in these situations. Another limitation is that, if we want to compare relative strength across disparate asset classes, it is usually impossible to find a significant anchor that makes sense for all of them. Why compare, for instance, European equities, grains, sugar, and cocoa to the same starting date, and how is this better than picking an arbitrary starting point?

One potentially attractive solution averages several different rates of change, perhaps with different weightings. Using a system like this, it is possible to create a measure that has a very long look-back window, but is also very responsive to recent data. Bill O'Neil has long been an advocate of such an approach, which has been used with some success in his funds and his writings. Traders who are interested in this concept can begin by simply averaging two different rates of change, comparing relative strength rankings, and then tweaking the measure via weightings or the addition of other look-back periods in the average. As always, each addition will bring additional complexity into the tool, so be sure that you are compensated with real value. Simple, parsimonious tools will usually outperform complex calculations in most market-related applications.

Trading Relative Strength Though the concept of being long the strongest markets by relative strength and short the weakest is sound, there are the twin forces of mean reversion and range expansion to consider. A campaign of simply buying the strongest markets will usually result in frustration, as your entries will often be at the apex of overbought markets. At the risk of oversimplifying, most successful relative strength trading programs follow some pattern like this:

- Understand the overall market trend, and decide whether you want to trade from the long side, the short side, or both. If trading from both sides, decide whether you wish to construct a true hedged portfolio or simply to hold both long and short positions as you deem them attractive.
- Identify the strongest and weakest relative strength candidates.
- Look to buy the strongest relative strength candidates, but buy them on weakness and using specific technical patterns as triggers. Conversely, look to short the weakest markets into strength.
- Once the leaders have been bought on weakness, monitor them carefully as they turn out of the weakness to see if they resume leadership. If not, exit or adjust the trade. If the weakness continues for too long, the leaders will no longer be leaders.

The actual execution of buying into weakness is not as difficult as it sounds—use the general technical rules for buying pullbacks. As long as the pullbacks do not develop extreme countertrend momentum (e.g., make a significant new momentum low reading on the MACD), they should be buyable for at least an attempt at making new highs. The reverse is true for shorting into pops. With some experience, it is not difficult to make these trades with some degree of reliability, but every piece of the puzzle matters: the relative strength measure, the frequency of evaluation/rebalancing, the actual execution triggers, whether you are executing off simple charts or spread charts, and your intended exit strategy. Change one part, and the others will have to adjust as well, as there is usually a fairly small sweet spot where everything comes together and the system works reliably. As long as you understand the core concepts, do your homework, and understand how these concepts play out in your chosen market, you can build a strong trading program around these ideas.

It is, however, very important to have a realistic sense of how these ideas work, rather than trying to trade an idealized model that has a loose connection with reality. Realize that relative strength leaders are usually a large group, and there is generally rotation within the group. In the case of stocks, there may be 50 to 150 different names vying for leadership on the rallies. In the case of the commodity metals, there may be only four to 10 names in the sector, but relative strength may pass between two or three of those regularly. The point is that you cannot say that "XYZ is the market leader" and then abandon XYZ the first time you notice another name has edged XYZ off the very top of list. In addition to its actual ranking in any quantitative scheme you develop, the trading patterns and integrity of trends in the leaders are also important considerations. Last, consider the actual instruments you will use for execution. A relative strength portfolio allocation model could focus on broad sectors or asset classes, though it may make little sense to consider relative strength between, for instance, equities and real estate. Shorter-term traders will probably find better success with individual stocks or futures contracts, but this analysis may be enhanced with an awareness of shifting relative strength in those broad sectors.

One of the recurring themes of this book has been that simplistic technical patterns, taken out of context, have very limited utility. The only reliable patterns are those that are truly driven by large-scale institutional buying and selling pressure, and technical traders have an edge only in the presence of a real buying and selling imbalance. The logical question is: how do we know when such an imbalance exists? Relative strength points the way to one possible answer: using a relative strength screen as the first step in a technical process that then focuses on individual patterns will usually have the trader focused on markets that are, by definition, experiencing an imbalance of buying pressure. Again, there is no holy grail, but this combination of well-researched technical patterns in a relative strength context creates opportunities for synergy and for a trading plan in which the whole truly is greater than the sum of the parts.